



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/552,875

10/13/2005

Niki S. Woodhead

20410/0203396-US0

9177

7278

7590

07/31/2008

DARBY & DARBY P.C.

P.O. BOX 770

Church Street Station

New York, NY 10008-0770

EXAMINER

GARCIA, ERNESTO

ART UNIT

PAPER NUMBER

3679

MAIL DATE

DELIVERY MODE

07/31/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/552,875	<b>Applicant(s)</b> WOODHEAD ET AL.	
	<b>Examiner</b> ERNESTO GARCIA	<b>Art Unit</b> 3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 4-7, 9-12 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8 and 13-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/8/2008</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 15, 2008 has been entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Response to Amendment***

The status identifier "(Previously provisionally withdrawn)" in claims 5, 7, 11, and 12, is not a proper identifier under 37 CFR 1.121 and should be --(Withdrawn)--.

### ***Restriction***

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1-3, 8, and 13-16, drawn to a tolerance ring.

Group II, claims 4 and 5, drawn to an apparatus.

Group III, claim 6, 7, 9-12, and 17-20, drawn to a method of assembling an apparatus.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

an assessment of the prior art with respect to the independent claims provides no unity of invention since the “special technical features”, i.e., “corrugated protrusions all extending in a common radial direction away from an unformed annular portion of the band, wherein the corrugated protrusions form a protrusions load bearing area that is smaller than an unformed annular portion load bearing area of the unformed annular portion that is configured to distribute a load from the protrusions load bearing area over a portion of a first component that is to be engaged with the unformed annular portion” (claim 1, lines 3-8) common in each of the independent claims is known from the admitted prior art (Figures 1 and 2), Cramer, Jr. et al., 4,828,423 and 4,981,390, Barnley et al., 6,755,746, and Kugelhalter, DE-1,872,950. Applicant should note that the lack of unity is based on a *posteriori* and the special technical features, common to all species, do not define a contribution over the prior. See MPEP 1850 (II).

During a telephone conversation with Mr. John Branch on July 17, 2008 a provisional election was made with oral traverse to prosecute the invention of Group I, claims 1-3, 8, and 13-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 4-7, 9-12, and 17-20 are withdrawn from further

consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product

Art Unit: 3679

claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

### ***Drawings***

The drawings were received on April 14, 2008. These drawings are acceptable.

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: “corrugated protrusions all extending in a common radial direction away from an unformed annular portion of the band” recited in claim 1, lines 3-4.

The disclosure is objected to because of the following informalities:

the description of reference character "2" on page 18, line 26, is inconsistent with that described on page 18, line 17. Appropriate correction is required.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities:

regarding claim 1, "a protrusions" in line 4 should be --a protrusion-- since the article does not read correctly. Appropriate correction is required. For purposes of examining the instant invention, the examiner has assumed these corrections have been made.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 8, and 13-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the recitation “the corrugated protrusions form a protrusions load bearing area that is smaller than an unformed annular portion load bearing area of the unformed annular portion that is configured to distribute a load from the protrusions load bearing area over a portion of a first component that is to be engaged with the unformed annular portion” in lines 4-8 is nowhere found in the disclosure. Further, the drawings fail to indicate that the elected species has projections having any load bearing area that is smaller than an unformed annular portion. Accordingly, the claim does not comply with the written description requirement.

Regarding claims 2, 3, 8, and 13-16, the claims depend from claim 1 and therefore do not comply with the written description requirement.

Claims 1-3, 8, and 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the recitation “corrugated protrusions” in line 3 is misdescriptive since the protrusions 2 are not corrugated themselves. Rather, the ring is corrugated due to the protrusions. Further, the description “the corrugated protrusions form a protrusions load bearing area that is smaller than an unformed annular portion load bearing area of the unformed annular portion” in lines 4-6 is misdescriptive and/or inaccurate since the elected species I, Figure 4, shows instead



the protrusions forming a protrusion load bearing area that is greater than an unformed annular portion load bearing area of the unformed annular portion.

Regarding claim 15, the metes and bounds of the claim is unclear. In particular, how does the limitation “the unformed annular portion engages with a bearing and all of the protrusion engage with a wall of a bore in moveable arm of a computer disk drive, wherein the moveable arm is formed of a material that is softer than the bearing” in lines 1-4 further limits the tolerance ring. Note that the claim fails to further limit the ring itself.

Regarding claims 2, 3, 8, 13, 14, and 16, the claims depend from claim 1 and therefore are indefinite.

### ***Claim Rejections - 35 USC § 102***

Claims 1, 2, 13, 14, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Cramer, Jr. et al., 4,981,390.

Regarding claim 1, Cramer et al. disclose, in Figure 7, a tolerance ring comprising a band **60** of resilient material. The band 60 has corrugated protrusions **64** and a guide portion **82**. The corrugated protrusions **64** all extend radially in a common radial direction away from an unformed annular portion **B1** (see marked-up attachment) of the band **60**. The corrugated protrusions **64** form a protrusion load bearing area that

Art Unit: 3679

is smaller than an unformed annular portion load bearing area of the unformed annular portion **B1**. The guide portion **82** is contiguous with and extends axially from the unformed annular portion **B1** of the band **60**. The guide portion **82** comprises at least one guide surface **A1** inclined relative to the axis of the band **60** in the radial direction of the corrugated protrusions **64** such that a free end **A2** of the guide portion **82** defines an opening of a size other than that **A3** defined by the band **60**. Note that the unformed annular portion is configured to distribute a load from the protrusions load bearing area over a portion of a first component that is to be engaged with the unformed annular portion.

Regarding claim 2, the angle of inclination of the guide surface **A1** relative to the axis is constant along the length of the guide surface.

Regarding claim 13, the guide portion **82** is sufficiently smooth.

Regarding claim 14, the unformed annular portion load bearing area is sufficiently sized to prevent torque ripple.

Regarding claim 16, the band **60** is formed from a strip of resilient material curved into a substantially annular shape with a gap between ends of the strip.

Claims 1-3, 8, 13, 14, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Blaurock et al., 3,838,928.

Regarding claim 1, Blaurock et al. disclose, in Figure 7, a tolerance ring comprising a band **124** of resilient material. The band has corrugated protrusions **136** and a guide portion 138. The corrugated protrusions **136** (the inwardly extended ones) all extend radially in a common radial direction away from an unformed annular portion **B1** (see marked-up attachment) of the band **124**. The corrugated protrusions form a protrusion load bearing area that is smaller than an unformed annular portion load bearing area of the unformed annular portion. The guide portion **138** is contiguous with and extends axially from the unformed annular portion of the band **124** (note that the unformed annular portion is also between the projections and thus the guide portion blends between the projections where is not formed). The guide portion **138** comprises at least one guide surface **A1** inclined relative to the axis of the band **124** in the radial direction of the corrugated protrusions **136** such that a free end **A2** (see marked-up attachment) of the guide portion **138** defines an opening of a size other than that **A3** (see attachment) defined by the band **124**. Note that the unformed annular portion is configured to distribute a load from the protrusions load bearing area over a portion of a first component that is to be engaged with the unformed annular portion.

Regarding claim 2, the angle of inclination of the guide surface **A1** relative to the axis is constant along the length of the guide surface.

Regarding claims 3 and 8, the guide portion **138** extends from the whole circumference of the band **124**.

Regarding claim 13, the guide portion is sufficiently smooth.

Regarding claim 14, the unformed annular portion load bearing area is sufficiently sized to prevent torque ripple.

Regarding claim 16, the band is formed from a strip of resilient material curved into a substantially annular shape with a gap between ends of the strip.

### ***Claim Rejections - 35 USC § 103***

Claims 1-3, 8, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' admitted prior art in view of Blaurock et al., 3,838,928.

Regarding claim 1, applicants admit, in Figure 2, a tolerance ring comprising a band **1** of resilient material. The band **1** has corrugated protrusions **2**. The corrugated protrusions **2** all extend radially in a common radial direction away from an unformed annular portion of the band **1**. The corrugated protrusions form a protrusion load bearing area that is smaller than an unformed annular portion load bearing area of the

Art Unit: 3679

unformed annular portion. However, the admitted prior art fails to disclose a guide portion being contiguous with and extends axially from the unformed annular portion of the band, the guide portion comprising at least one guide surface inclined relative to the axis of the band **1** in the radial direction of the corrugated protrusions **2** such that a free end of the guide portion defines an opening of a size other than that defined by the band. Blaurock et al. teach, in Figure 7, a guide portion **140** being contiguous with and extends axially from an unformed annular portion of the band **124** (note that the unformed annular portion is also between the projections and thus the guide portion blends between the projections where is not formed). Blaurock et al. further teach that the guide portion **140** comprises at least one guide surface inclined relative to the axis of the band in a radial direction of corrugated protrusions **138** such that a free end of the guide portion **140** defines an opening of a size other than that defined by the band **124**; however, Blaurock et al. does not explicitly state the reason for the guide surface. Common sense reveals that tapering the ends of the rings allows insertion of a shaft much easier than a ring not having a guide portion. Therefore, as taught by Blaurock et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the ring of the admitted prior art with a guide portion so that the bearing **3** can be inserted into the hole of the ring with much ease.

Given the modification, the unformed annular portion would have been configured to distribute a load from the protrusions load bearing area over a portion of a first component that is to be engaged with the unformed annular portion.

Regarding claim 2, the angle of inclination of the guide surface relative to the axis is constant along the length of the guide surface.

Regarding claims 3 and 8, the guide portion would have extended from the whole circumference of the band.

Regarding claim 13, the guide portion **140** is sufficiently smooth.

Regarding claim 14, the unformed annular portion load bearing area is sufficiently sized to prevent torque ripple.

Regarding claim 15, the unformed annular portion engages with a bearing **3** and all of the protrusions engage with a wall of a bore in a moveable arm **5** of a computer disk drive. The moveable arm is formed of a material that is softer than that of the bearing.

Regarding claim 16, the band is formed from a strip of resilient material curved into a substantially annular shape with a gap between ends of the strip.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-3, 8, and 13-16 have been considered but are moot in view of the new grounds of rejection. In particular, note the 35 USC 112 rejections.

With respect to Blaurock et al. applicant argues that Blaurock actually discloses that element 124 is a spacer ring. In response, this spacer ring qualifies as a tolerance ring and nothing in the claims structurally differentiates over the reference. Applicants argue that the claims do not preclude a band that has a first set of protrusions extending in one direction away from the band and a second set of protrusions extending in another direction away from the band. In response, it should be noted that the claims are open ended and does not preclude all sorts of protrusions. Note that the examiner only relies on the one that are either extending outwardly or inwardly such that all protrusion that extend outwardly or inwardly meet the claims. Applicants argue that claims 6, 9, and 10 require that the band engages the shaft. In response, the argument is moot in view of the restriction under PCT rules. Applicants further argue that Blaurock et al. do not disclose a guide portion to facilitate alignment between an unformed annular portion that is to be engaged with a first component. In response, it should be first noted that patentability is based on the structural differences between the claimed invention and that of the prior art. This limitation is inherently met by Blaurock since the reference discloses a guide portion. There's no requirement that the first

component be engaged with the unformed annular portion and the claims is solely directed to the ring and nothing else.

### ***Conclusion***

The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gutierrez et al., 6,889,956, show a similar ring with a tapered portion (see Figure 2), and patent, SU-1646706, shows a similar ring.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 571-272-7083. The examiner can normally be reached from 9:30AM-6:00PM. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached at 571-272-7087.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.



Art Unit: 3679

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/E. G./

Examiner, Art Unit 3679

July 30, 2008

Attachment: one marked-up page of Cramer, Jr. et al., 4,981,390  
one marked-up page of Blaurock et al., 3,838,928

/Daniel P. Stodola/  
Supervisory Patent Examiner, Art Unit 3679

Art Unit: 3679

Cramer, Jr. et al., 4,981,390

# FIG. 7



